Grape Rootworm – looking at alternatives for managing an old foe that is making a comeback in Lake Erie region vineyards.

Executive Summary

Grape rootworm is making a comeback in Lake Erie vineyards, reducing vine size and yield and Cornell extension and research staffs are ensuring growers have the tools needed to effectively manage this pest.

Issues/Needs and Audiences

Grape rootworm, *Fidia viticida (Walsh)* , was once considered to be the primary insect pest of grapes in the eastern United States. Feeding on the roots of the vine by the larvae can lead to significant reductions in vine vigor and even death of the vine in as little as three years in heavy infestations. The introduction of the pesticide DDT has been credited with bringing this pest under control in the vineyards of the Lake Erie Region of New York. Even after the use of DDT was banned in the United States in 1972, it's persistence in the soil is thought to have kept grape rootworm populations down to levels low enough as to not be a concern to commercial grape growers. Grape rootworm is making a comeback in Lake Erie vineyards, reducing vine size and yield. Having dropped from the designation of a primary pest, NYS grape growers find they do not have the tools they need to effectively manage the reemergence of this pest. This is primarily due to the pesticide regulations in NYS requiring both the pest and the crop to be on the pesticide label. Currently, only one insecticide is labeled for use against grape rootworm in NYS raising concerns that the pest will develop resistance to that material in a short amount of time. The Lake Erie Regional Grape Program processors group identified alternative management strategies for grape rootworm as a priority for the 30,000 acres of grapes in their region.

Extension Responses

In conjunction with Greg Loeb, Professor, Department of Entomology, NYSAES, two replicated spray trials using 4 insecticides currently registered for use on grapes in New York State were conducted in grower vineyards with grape rootworm populations in the Lake Erie grape growing region. The materials in these trials were chosen in part due to their mode of action being different from the material currently labeled for grape rootworm. This helps to ensure that materials will be available for use in a resistance management program, with the result being all the materials being effective against the pest for a much longer time. The spray trials consisted of 4 replications per site with 5 treatments (including a control where no materials were applied) per replication. Members of the Cornell Lake Erie Research and Extension Laboratory applied the treatments and assisted the Lake Erie Regional Grape Program extension team in collecting data. Shaking count vines and collecting grape rootworm adults on a catching frame was used to determine the effectiveness of treatments. This sampling occurred just prior to the treatments being applied, immediately following the application, and two weeks later.

Accomplishments

All four materials used in the spray trials were found to be effective against grape rootworm. Armed with this information, a 2ee will be applied for each of these materials, allowing grape growers to use them against grape rootworm in NY vineyards. This will provide the materials needed to effectively manage this pest for years to come, by implementing a resistance management strategy of rotating effective materials with different modes of action. This is extremely important as grape rootworm has

only one generation per year and spends the majority of its life underground, limiting the opportunities to expose it to multiple modes of action each year. By being better able to control this pest, grape growers will see vine size in infested vineyards increase, leading to a higher fruiting capacity and more tons per acre resulting in increased profits.